OLYMPUS

Maintenance Manual

MAINTENANCE UNIT

MU-1

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INTRODUCTION

Introduction

Repair and maintenance of this product requires highly specialized knowledge and techniques.

We recommend that you contact an Olympus service center in your area if a problem develops with the product.

If repairs or modifications are made by personnel not authorized by Olympus, the warranty is void, and Olympus shall not be liable for damage that occurs to or as a result of use of the modified product.

The information contained in this manual is subject to change at any time without notice. Later editions of this manual will contain revised and updated material.

Applicable Unit

- MAINTENANCE UNIT MU-1 AC120V with English
- MAINTENANCE UNIT MU-1 AC220-240V with Symbol

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Chapter 1: Product Outline

1. Product Overview

This product is used in combination with the AW channel cleaning adapter, leak tester and chemical tank to provide the following functions.

(1) This product can be combined with the AW channel cleaning adapter to drain water from the OES scope and EVIS scope air and water channel.
(2) This product can be combined with the leak tester to test OES scopes and EVIS scopes for water leaks by applying air pressure to the interior of the scopes and then submerging them in water to look for an air bubbles.
(3) This product can be combined with the AW channel cleaning adapter and chemical tank to feed rubbing alcohol into the OES scope and EVIS scope air and water channel in order to dry them.

2. Features

(1) This product simplifies draining water from the OES scope and EVIS scope air and water pipelines. (AW channel cleaning adapter)
(2) This product simplifies the water leak tests for the OES scope and EVIS scope. (Using the leak tester.)
(3) The product can be installed on a wall near a sink with the included hanger.
(4) This product can be installed on the left or right side of a sink.
(5) This product simplifies feeding rubbing alcohol into the OES scope and EVIS scope air and water channel in order to dry them. (AW tube cleaning adapter, chemical tank)

3. Restrictions

(1) OES scopes and EVIS scopes can be used.
(2) Unless the AW channel cleaning adapter, leak tester and chemical tank are used, draining water from the air and water channel, leak inspections and feeding rubbing alcohol for drying the OES scope and EVIS scope are not possible.
(3) In order to drain the water feeding channel, cover the water supply connector with a finger. (Same as with the former model.)
(4) The ambient operation conditions are as follows:
    a) Temperature: 10 to 40 ºC
    b) Humidity: 30 to 85%
    c) Atmospheric pressure: 700 to 1060 hPa
    d) Not to be used in an atmosphere with inflammable gases.
(5) The power supply conditions are as follows:
    a) Rated power supply voltage: 100 V, 120 V, 220 to 240 V (according to the intended market)
    b) Rated input current: 0.4 A, 0.4 A, 0.2 A
    c) Frequency: 50/60 Hz
    d) Allowed voltage fluctuation: ±10%

4. Specifications

4-1 Main Unit Specifications

4-1-1 Applicable Endoscopes

OES Scope
EVIS Scope

4-1-2 Pump Used

Electromagnetic vibrator pump

4-1-3 Air Feeding Performance

At the scope socket:
2.84×10^4 Pa or greater at 0 ml/min;
1.76×10^4 Pa or greater at 2000 ml/min;
Note: Measured at the rated power supply voltage and a room temperature of 20 to 25 ºC

4-1-4 Control Method

By turning the power switch ON/OFF.

4-1-5 Hook Installation

Can be hung down by connecting the hanger to the hook installed in a wall.
(The hook is screwed into a wall and fixed.)

4-1-6 External Dimensions

Width 85 x Height 157 x Depth 170 mm

4-1-7 Weight

1.8 kg

4-1-8 Power Supply

Voltage: 100 V, 120 V, 220 to 240 V AC
Frequency: Both 50/60 Hz
Current: 0.4A (100 V, 120 V), 0.2A (220 V to 240 V)
Voltage fluctuation rate:within ±10%

4-2 Ambient Environment

4-2-1 Ambient Temperature

10 to 40ºC

4-2-2 Relative Humidifty

30 to 85%

4-2-3 Atmospheric Pressure

700 to 1060 Pa

4-2-4 Inflammable Atmosphere

Use in an inflammable atmosphere is prohibited.

5. Names and Functions of Various Components

5-1 Front and Sides

Hook

Used when the maintenance unit is hung on a wall.
The included screw is used to install this hook near a sink if necessary.

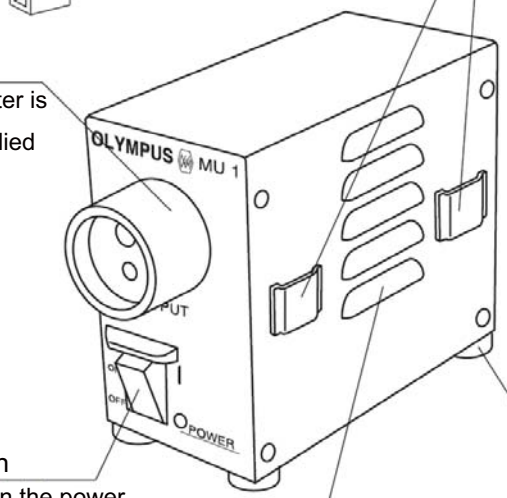
Screw x 2

Hangers (on both sides)

Hangers are used to hang the maintenance unit on the hook or the chemical tank (MB-264) on the maintenance unit.
Either the left or right hanger can be used.

Scope socket

An endoscope or leak tester is connected and air is supplied through the connecter.



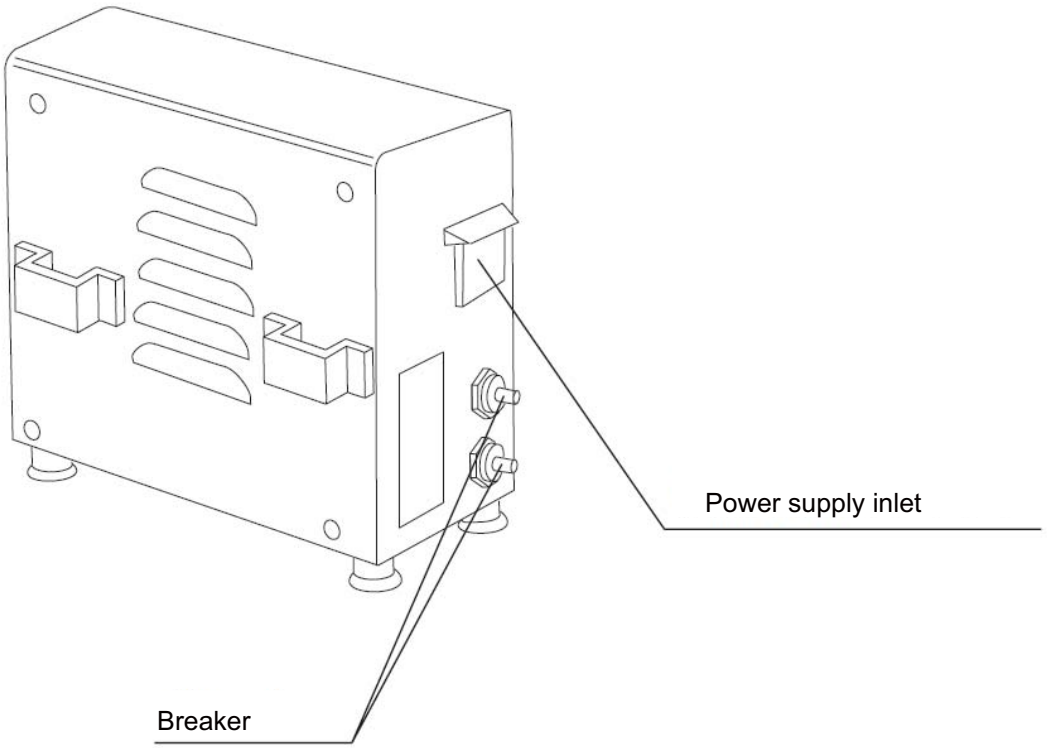
Power supply switch

Pushing the top will turn on the power supply and the power supply switch lamp will light at the same time. The pump will start to operate and air will come out of the hole at the bottom of the scope socket.

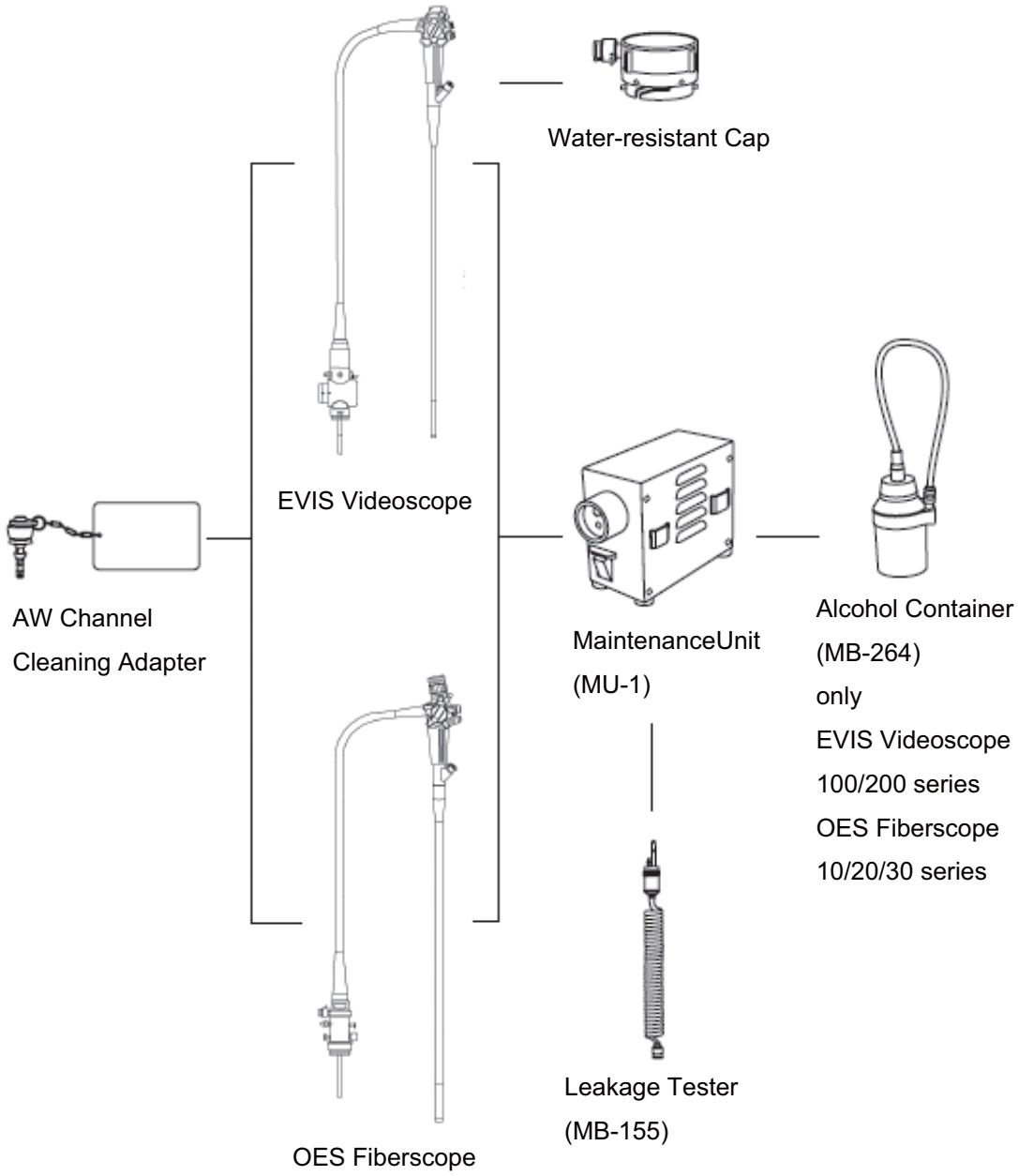
Ventilation hole

Suction disk

5-2 Back



6. System Chart



Chapter 2: Specifications

Refer to the “Specifications” of Instruction Manual.

Chapter 3: Installation and Connection

Refer to the “Installation and Connection” of Instruction Manual.

Chapter 4: Care, Storage and Disposal

Refer to the “Care, Storage and Disposal” of Instruction Manual.

Chapter 5: Inspection

Refer to the “Inspection” of Instruction Manual.

1. Inspection Check Sheet

Please copy and use check sheet on next page.

A check item may change with the destination and specifications.

There may be a check item which is on this list and is not in the instruction manual.

Please refer to the instruction manual (Chapter of Inspection or Inspection Before Use) for an actual check item and the check procedure.

There may be a blank column in a Check Sheet. Please utilize this blank column, if needed.

MU-1 INSPECTION CHECK SHEET

Serial number: _____ Year & Month: / .

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Inspecting the Operation															
Inspector															

Day	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Inspecting the Operation																
Inspector																

Chapter 6: Safety Check

1. External Leak Current

- Criteria
  External leak currents should not exceed the values indicated below.

Inspection item	Criteria	
	Normal condition	Single fault
External leak current	100 μA	500 μA

- Inspection procedure
  Measure the leak current at the external screw that is farthest from the inlet.
  See the inspection procedures for leak current testing instrument for the measurement methods.

2. Grounding Leak Current

- Criteria
  Grounding leak currents should not exceed the values indicated below.

Inspection item	Criteria	
Grounding leak current	Normal condition	Single fault
	500 μA	1000 μA

- Inspection procedure
  Measure the leak current of the inlet grounding terminal.
  See the inspection procedures for leak current testing instrument for the measurement methods.

3. Grounding Resistance

- Criteria
  The resistance between the external case and grounding line should be 0.2 ohm or less.

- Inspection procedure
  Measure the resistance between the grounding terminal in the removable power supply cord and the screw that is farthest from the inlet.
  See the inspection procedures for grounding resistance testing instrument for the measurement methods.

4. Safety Check Sheet

Date of inspection			
Product	MU-1	Inspected by	
Serial number		Checked by	

Electrical Safety Inspection

Item		Criteria		Result
2-1-1	External leak current	Normal Condition	100 μA or less	
		Single Fault	500 μA or less	
2-1-2	Grounding leak current	Normal Condition	500 μA or less	
		Single Fault	1000 μA or less	
2-1-3	Grounding Resistance	Between the external case and grounding line.	0.2 Ω or less	

Chapter 7: Troubleshooting

Refer to the “Troubleshooting” of Instruction Manual.

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